

Notice of Allowability

Application No.

09/657,016

Examiner

David E. England

Applicant(s)

IYER ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/28/2005.
2. ☒ The allowed claim(s) is/are 1 - 3, 5 - 8, 10 - 13 and 15.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 07/26/2005 DE 12/07/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other

WILLIAM C. VAUGHN, JR.
PRIMARY EXAMINER

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Kirk Wong, Reg. No. 43284 on November 28, 2005.

IN THE CLAIMS

Please cancel Claims 4, 9 and 14 as follows:

Please amend Claim 1, 6, and 11 as follows:

1. (Currently Amended) A process for determining latency between multiple servers and a client across a network in a computer environment, comprising the steps of:
receiving a request for a content server address from said client;
sending a latency metric request from a server to an appropriate probe server;
receiving a request for latency metrics on a probe server;
wherein said latency metric request specifies a particular client;
wherein a latency management table initially comprises a list of IP addresses along with
corresponding Border Gateway Protocol (BGP) hop counts, ~~dynamic hop counts,~~
~~and Round-Trip Times (RTT);~~
looking up the latency metric for said client in said latency management table;

sending said latency metric to the requesting server;

receiving latency metric data from said probe server at the requesting server;

determining an optimal content server for said client using said latency metric data;

sending said optimal content server's address to said client;

wherein only the BGP hop count for said client in said latency management table is used

for said latency metric upon an initial request for said client; and

wherein the probe server determines a dynamic hop count and Round Trip Time (RTT)

data for said client after the initial request, enters the dynamic hop count and RTT

information into in said latency management table, and are use[[d]]s the dynamic

hop count and RTT information for said latency metric for subsequent requests

for said client.

2. (Original) The process of Claim 1, further comprising the steps of:

sending periodic latency probes to the IP addresses in said latency management table;

receiving response packets for said latency probes; and

recording the dynamic hop count and latency (RTT) data in said latency management

table.

3. (Original) The process of Claim 2, wherein periodic latency probes are sent to a higher

level server of a client by masking said client's IP address in said latency management

table.

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4. (Canceled).
5. (Currently Amended) The process of Claim [[4]] 1, wherein said determining step gathers the expected latency metrics and uses the inverse relationship of the dynamic hop counts in said latency metric data in a weighted combination with the RTT in said latency metric data to determine which latency metric data indicates the optimal content server.
6. (Currently Amended) An apparatus for determining latency between multiple servers and a client across a network in a computer environment, comprising:
 - a module for receiving a request for a content server address from said client;
 - a module for sending a latency metric request from a server to an appropriate probe server;
 - a module for receiving a request for latency metrics on a probe server;
 - wherein said latency metric request specifies a particular client;
 - a latency management table;
 - wherein said latency management table initially comprises a list of IP addresses along with corresponding Border Gateway Protocol (BGP) hop counts, ~~dynamic hop counts, and Round Trip Times (RTT);~~
 - a module for looking up the latency metric for said client in said latency management table;
 - a module for sending said latency metric to the requesting server;

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a module for receiving latency metric data from said probe server at the requesting server;

a module for determining an optimal content server for said client using said latency metric data;

a module for sending said optimal content server's address to said client;

wherein only the BGP hop count for said client in said latency management table is used

for said latency metric upon an initial request for said client; and

wherein the probe server determines a dynamic hop count and Round Trip Time (RTT)

data for said client after the initial request, enters the dynamic hop count and RTT

information into in said latency management table, and are use[[d]]s the dynamic

hop count and RTT information for said latency metric for subsequent requests

for said client.

7. (Original) The apparatus of Claim 6, further comprising:

a module for sending periodic latency probes to the IP addresses in said latency management table;

a module for receiving response packets for said latency probes; and

a module for recording the dynamic hop count and latency (RTT) data in said latency management table.

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8. (Original) The apparatus of Claim 7, wherein periodic latency probes are sent to a higher level server of a client by masking said client's IP address in said latency management table.
9. (Canceled).
10. (Currently Amended) The apparatus of Claim ~~[[9]]~~ 7, wherein said determining module gathers the expected latency metrics and uses the inverse relationship of the dynamic hop counts in said latency metric data in a weighted combination with the RTT in said latency metric data to determine which latency metric data indicates the optimal content server.
11. (Currently Amended) A program storage medium readable by a computer, tangibly embodying a program of instructions executable by the computer to perform method steps for determining latency between multiple servers and a client across a network in a computer environment, comprising the steps of:
receiving a request for a content server address from said client;
sending a latency metric request from a server to an appropriate probe server;
receiving a request for latency metrics on a probe server;
wherein said latency metric request specifies a particular client;
wherein a latency management table initially comprises a list of IP addresses along with
corresponding Border Gateway Protocol (BGP) hop counts, ~~dynamic hop counts,~~
~~and Round Trip Times (RTT);~~

looking up the latency metric for said client in said latency management table;
sending said latency metric to the requesting server;
receiving latency metric data from said probe server at the requesting server;
determining an optimal content server for said client using said latency metric data;
sending said optimal content server's address to said client;
wherein only the BGP hop count for said client in said latency management table is used
for said latency metric upon an initial request for said client; and
wherein the probe server determines a dynamic hop count and Round Trip Time (RTT)
data for said client after the initial request, enters the dynamic hop count and RTT
information into in said latency management table, and are use[[d]]s the dynamic
hop count and RTT information for said latency metric for subsequent requests
for said client.

12. (Original) The method of Claim 11, further comprising the steps of:
sending periodic latency probes to the IP addresses in said latency management table;
receiving response packets for said latency probes; and
recording the dynamic hop count and latency (RTT) data in said latency management
table.
13. (Original) The method of Claim 12, wherein periodic latency probes are sent to a higher
level server of a client by masking said client's IP address in said latency management
table.

14. (Canceled).
15. (Currently Amended) The method of Claim [[14]] 11, wherein said determining step gathers the expected latency metrics and uses the inverse relationship of the dynamic hop counts in said latency metric data in a weighted combination with the RTT in said latency metric data to determine which latency metric data indicates the optimal content server.

Reasons for Allowance

2. The following is an examiner's statement of reasons for allowance: the closest prior art of record (Shah et al., U.S. Patent No. 6,292,832 and Rabinovich U.S. Patent No. 6,256,675) does not teach nor suggest in detail "wherein a latency management table initially comprises a list of IP addresses along with corresponding Border Gateway Protocol (BGP) hop counts; looking up the latency metric for said client in said latency management table; sending said latency metric to the requesting server; receiving latency metric data from said probe server at the requesting server; determining an optimal content server for said client using said latency metric data; sending said optimal content server's address to said client; wherein only the BGP hop count for said client in said latency management table is used for said latency metric upon an initial request for said client; and wherein the probe server determines a dynamic hop count and Round Trip Time (RTT) data for said client after the initial request, enters the dynamic hop count and RTT information into said latency management table, and uses the dynamic hop count and RTT

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information for said latency metric for subsequent requests for said client.” as argued by the Applicant (see Remarks dated 08/19/2005, pages 11 – 13; Specification as of 07/19/2004, pages 8 – 12; and Drawings dated 09/07/2000, Figures 1 and 3 of Applicant’s enabling portions of the specification and drawings).

3. Neither Shah nor Rabinovich, teach alone or in combination, the system sending for a BGP count only once in an initial request for said client and having a dynamic hop count, different from BGP, and a RTT measured and utilized for all other requests. This discards the use of the BGP count for it is no longer useful in the system because of the newly measured parameters for determining the best route for communication.

4. Shah teaches IGP sub-group metrics are selected and members of the subgroup compared to find a best member of the subgroup (col. 18, line 57-col. 19, line 14). Shah does not contemplate that only the BGP hop count for said client in said latency management table is used for said latency metric upon an initial request for said client. Shah further does not contemplate that the dynamic hop count and RTT data for said client in said latency management table are used for said latency metric for subsequent requests for said client as claimed in Claims 1, 6, and 11. Shah makes no mention of which metrics from a latency management table are used for a latency metric upon subsequent latency metric requests for a client, (see Remarks dated 01/07/2005).

5. Rabinovich teaches more towards BGP hop count is used for distance calculations for all requests. Rabinovich teaches that a mapping function is used that calculates a distance using the number of BGP hops from a host's AS to another AS, A, in combination with the OSPF cost of delivering a message from the host to the nearest border router that advertises the external route

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to A within the host's AS. There is not teaches of any discontinued use of the BGP protocol after its initial use.

6. Furthermore, there is no real motivation for combining Rabinovich with Shah to make obvious that utilizing a standard protocol (BGP) initially in a request to a client then completely stopping the use of the standard protocol to use a more efficient protocol and hop count for the systems continued communication with said client, (Remarks dated 08/19/2005, pages 11 – 13; Specification as of 07/19/2004, pages 8 – 12; and Drawings dated 09/07/2000, Figures 1 and 3 of Applicant's enabling portions of the specification and drawings).

7. The dependent claims further limit the independent claims and are considered allowable on the same basis as the independent claim as well as for the further limitations set forth. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. Claims 1 – 3, 5 – 8, 10 – 13 and 15 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. England whose telephone number is 571-272-3912. The examiner can normally be reached on Mon-Thur, 7:00-5:00.

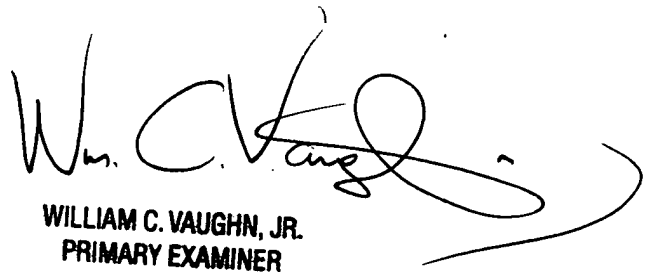
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on 571-272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David E. England
Examiner
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